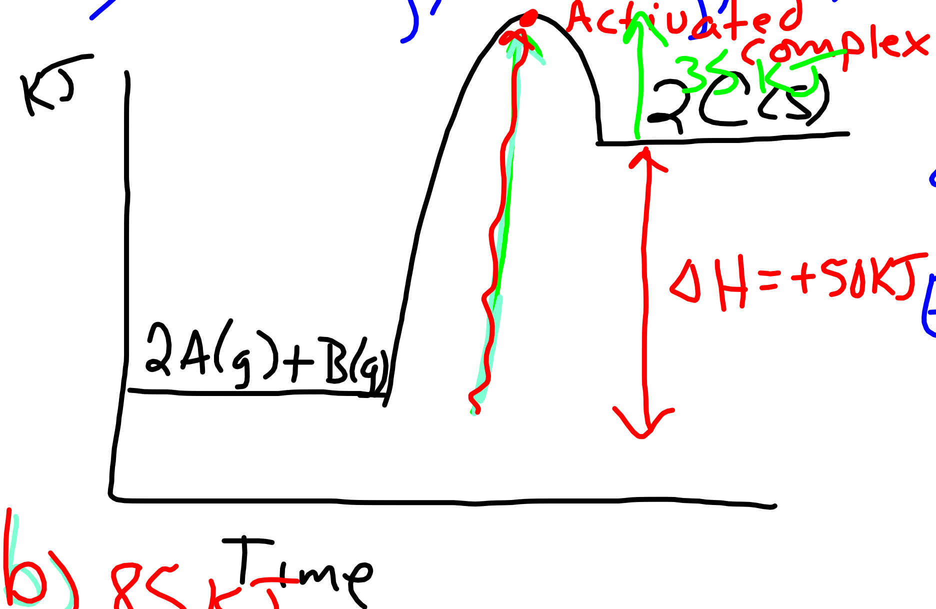
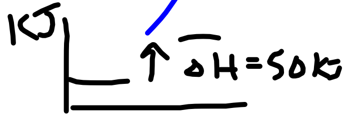
Connecting to Your World

18.5 The Progress of Chemical Reactions

PEARSON Prentice Hall

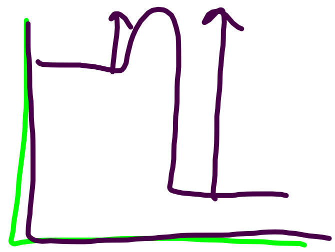
15) $2A(g) + B(g) \rightleftharpoons 2C(s)$





$\Delta H = +50KJ$
ENDO

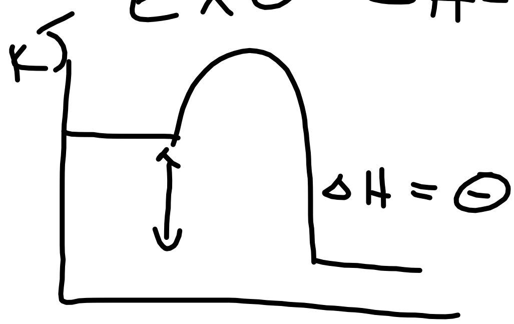
$E_{act} = +35KJ$



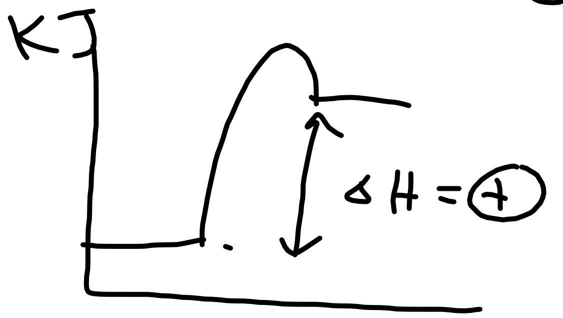
b) 85 KJ

Ch17

EXO $\Delta H = -$



ENDO $\Delta H = +$



The **rate law** is an expression for the rate of a reaction in terms of the concentration of reactants.

The **specific rate constant** (*k*) for a reaction is a proportionality constant relating the concentrations of reactants to the rate of the reaction.

Concent-ration

$\frac{mol}{L}$

[ ]

$$\text{Rate} = k[A]^a[B]^b$$

$$aA + bB \rightleftharpoons cC + dD$$

$$aA \rightleftharpoons cC \qquad \text{Rate} = k[A]^a$$

Reaction Rate

Change in concentration per unit time

Terms that we will look at

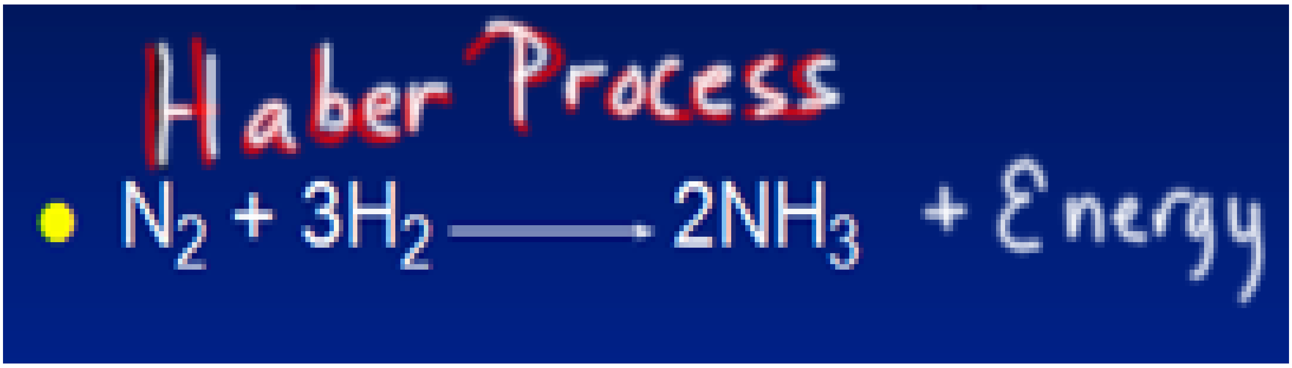
rate

order(overall order)

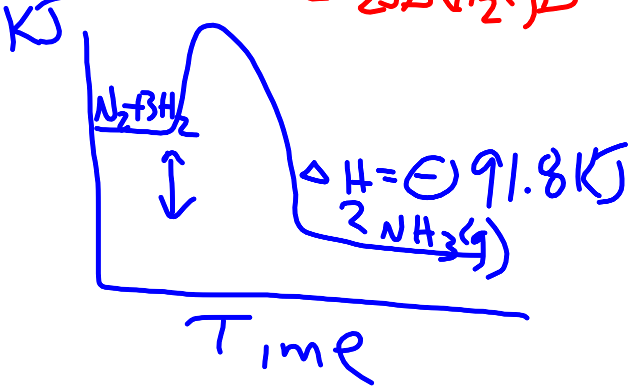
order for a particular reactant

sketching an activation energy diagram for a reaction

EX:



$rate = k[N_{2(g)}]^1[H_{2(g)}]^3$



overall order = 4

order in N_2 = 1

order in H_2 = 3